

**CLAIMS**

1. A discharge lamp comprising:

an electrode including a heater constituted of a coil portion and a first lead wire portion and a second lead wire portion that respectively connect the coil portion through a rear end of the coil portion, the heater having an electron emission material applied thereto,

wherein in the electrode, the first lead wire portion is connected to a first lead-in wire and the second lead wire portion is connected to the second lead-in wire, said first and second lead-in wires being provided on two opposed ends of a glass tube, in which a gas containing a light-emitting material is enclosed, and to an interior of which fluorescent substance is coated; and

wherein the coil portion is arranged vertically along a tube axis of the glass tube.

2. The discharge lamp according to claim 1, wherein as the heater, the coil portion is structured by a spiral wire with it being further wound spirally and without coming into contact therewith.

3. The discharge lamp according to claim 1, wherein the electrode comprises a scattering-prevention member for covering surroundings of the coil portion, said scattering-prevention member having openings in surfaces that respectively face the forward end and the rear end of the coil portion.

4. The discharge lamp according to claim 3, wherein the scattering-prevention member is a cylindrical sleeve whose both ends are open, and the coil portion is inserted into the inside of the sleeve.

5. The discharge lamp according to claim 4, wherein in the electrode, a forward end of the coil portion is arranged toward an interior of the sleeve without it exceeding an open end face of the sleeve at the forward end side thereof.

6. The discharge lamp according to claim 1, wherein the electrode comprises a connection-reinforcing member that has a first connection member for connecting the first lead wire portion with the first lead-in wire, and a second connection member for connecting the second lead wire portion with the second lead-in wire, while the first and second connection members are separated from each other.

7. The discharge lamp according to claim 4, wherein the electrode comprises a connection-reinforcing member that has a first connection member for connecting the first lead wire portion with the first lead-in wire, and a second connection member for connecting the second lead wire portion with the second lead-in wire, while the first and second connection members are separated from each other; and

wherein the sleeve is supported by any one of the first and second connection members.

8. A discharge lamp electrode comprising:  
a heater constituted of a coil portion and a first lead wire portion and a second lead wire portion that respectively

connect the coil portion through a rear end of the coil portion, the heater having an electron emission material applied thereto; and

a scattering-prevention member for covering surroundings of the coil portion, said scattering-prevention member having openings in surfaces that respectively face the forward end and the rear end of the coil portion.

9. The discharge lamp electrode according to claim 8, wherein as the heater, the coil portion is structured by a spiral wire with it being further wound spirally and without coming into contact therewith.

10. The discharge lamp electrode according to claim 8, wherein the scattering-prevention member is a cylindrical sleeve whose both ends are open, and the coil portion is inserted into the inside of the sleeve.

11. The discharge lamp electrode according to claim 10, wherein a forward end of the coil portion is arranged toward an interior of the sleeve without it exceeding an open end face of the sleeve at the forward end side thereof.

12. The discharge lamp electrode according to claim 10, comprising a connection-reinforcing member that has a first connection member for connecting the first lead wire portion with the first lead-in wire and a second connection member for connecting the second lead wire portion with the second lead-in wire while the first and second connection members are separated from each other,

wherein the sleeve is supported by any one of the first and second connection members.

13. A method for manufacturing a discharge lamp electrode, the method comprising:

a winding step of winding a wire to form a heater, said heater having a coil portion and a first lead wire portion and a second lead wire portion that extend respectively from a rear end of the coil portion;

a connection-reinforcing-member-welding step of welding the first lead wire portion of the heater to a first connection member of a connection-reinforcing member, and of welding the second lead wire portion of the heater to a second connection member of the connection-reinforcing member, said connection-reinforcing member including the first and second connection members with them being integrated with each other by means of a coupling portion;

an application step of applying an electron emission material to the heater in a condition where the heater is held by the connection-reinforcing member;

a lead-in portion welding step of welding a first lead-in wire to the first connection member and a second lead-in wire to the second connection member; and

a cutting step of cutting off the coupling portion from the connection-reinforcing member to separate the first and second connection members from each other.

14. The method for manufacturing the discharge lamp electrode according to claim 13, wherein the winding step comprises:

a first winding sub-step of winding a wire around a core wire; and

a second winding sub-step of spirally winding the wire that have been wound around the core wire without come into contact therewith; and

wherein a dissolving step of dissolving the core wire is performed after the connection-reinforcing-member-welding step.

15. The method for manufacturing the discharge lamp electrode according to claim 13, wherein a sleeve welding step of inserting the heater into the inside of the cylindrical sleeve, and of welding the sleeve to any one of the first and second connection members is performed after the application step.

16. A lighting system using the discharge lamp according to any one of claims 1-7.